

IBM Application Discovery for IBM Z Web  
Services V5.1.0

*User Guide*





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# Chapter 1. Accessibility Features for IBM Application Discovery for IBM Z

Accessibility features assist users who have a disability, such as restricted mobility or limited vision, to use information technology content successfully.

## Overview

IBM® Application Discovery for IBM Z® includes the following major accessibility features:

- Keyboard-only operation
- Operations that use a screen reader

IBM Application Discovery for IBM Z uses the latest W3C Standard, [WAI-ARIA 1.0](http://www.w3.org/TR/wai-aria/) ([www.w3.org/TR/wai-aria/](http://www.w3.org/TR/wai-aria/)), to ensure compliance with [US Section 508](http://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards) ([www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards](http://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards)) and [Web Content Accessibility Guidelines \(WCAG\) 2.0](http://www.w3.org/TR/WCAG20/) ([www.w3.org/TR/WCAG20/](http://www.w3.org/TR/WCAG20/)). To take advantage of accessibility features, use the latest release of your screen reader and the latest web browser that is supported by IBM Application Discovery for IBM Z.

The IBM Application Discovery for IBM Z online product documentation in IBM Knowledge Center is enabled for accessibility. The accessibility features of IBM Knowledge Center are described in the [Accessibility section of the IBM Knowledge Center help](https://www.ibm.com/support/knowledgecenter/en/about/releasenotes.html) (<https://www.ibm.com/support/knowledgecenter/en/about/releasenotes.html>).

## Keyboard navigation

This product uses standard navigation keys.

## Interface information

For alternative installation using Command Line Installation (CLI), refer to section [Alternative Installation for ADDI Using CLI](#) in *IBM AD Installation and Configuration Guide*.

The IBM Application Discovery for IBM Z user interfaces do not have content that flashes 2 - 55 times per second.

The IBM Application Discovery for IBM Z web user interface relies on cascading style sheets to render content properly and to provide a usable experience. The application provides an equivalent way for low-vision users to use system display settings, including high-contrast mode. You can control font size by using the device or web browser settings.

The IBM Application Discovery for IBM Z web user interface includes WAI-ARIA navigational landmarks that you can use to quickly navigate to functional areas in the application.

## Related accessibility information

In addition to standard IBM help desk and support websites, IBM has a TTY telephone service for use by deaf or hard of hearing customers to access sales and support services:

TTY service  
800-IBM-3383 (800-426-3383)  
(within North America)

For more information about the commitment that IBM has to accessibility, see [IBM Accessibility](http://www.ibm.com/able) ([www.ibm.com/able](http://www.ibm.com/able)).



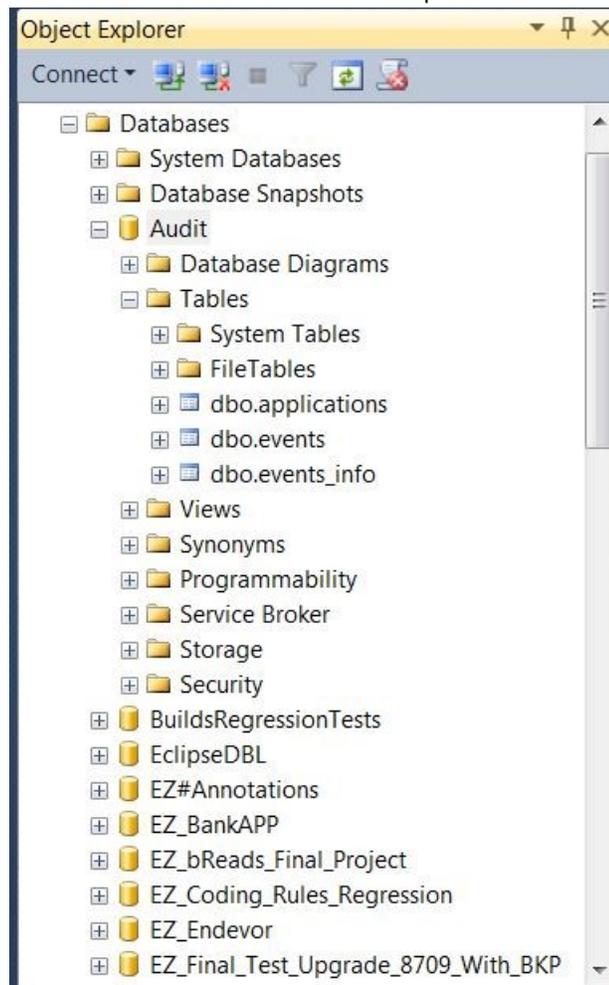
## Chapter 2. Prerequisites

Before you install IBM AD Catalog, IBM AD Audit and IBM AD BRD web services, make sure that the following software is installed and configured on the same Windows machine:

- Microsoft SQL Server.
- Microsoft JDBC Driver 6.0 for SQL Server.
- JAVA version 8.
- The ports used by IBM WAS Liberty Web Server are open, unused and not blocked by your firewall.

**Note:** Default ports for IBM WAS Liberty Web Server are **9080** and **9443**.

- An SQL database must be created for the Audit entries. Example:



- An additional SQL database must be created for the IBM AD Catalog. The name of this database must match the name of the database that will be entered in `server.xml`.

The version of the target **z/OS® Connect** server must be 3.0.2 or higher for **Data collector**.



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## Chapter 3. Installing Was Liberty

### About this task

To use IBM AD Catalog, IBM AD Audit and IBM AD BRD web services, a Liberty web server must be installed. If you do not have a Liberty server installed, you can install the IBM WAS Liberty Web Server, which is provided after the installation of IBM AD is completed.

### Procedure

1. Extract the wlp folder from the wlp-webProfile8-18.x.x.x.zip file, and put the wlp folder in the IBM AD Web Services installation folder. The default installation folder is C:\Program Files\IBM Application Discovery Servers\IBM AD Web Services.

**Note:** The IBM AD Catalog, IBM AD Audit and IBM AD BRD web services are deployed on the same IBM WAS Liberty. If you plan to reinstall or update IBM WAS Liberty, it is recommended to back up the web services together because they are using the same configuration file. For more information, see [VI. AD Web Services](#).

2. Go to \wlp\bin and execute the following command: **server.bat create ad\_server**.

```
Microsoft Windows [Version 10.0.17134.407]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\BogdanPopa>cd C:\Program Files\IBM Application Discovery and Delivery Intelligence\IBM AD Web Services\wlp\bin
C:\Program Files\IBM Application Discovery and Delivery Intelligence\IBM AD Web Services\wlp\bin>server.bat create ad_server
Server ad_server created.
```

**Note:** You can verify the successful web service creation by checking if the \ad\_server folder is present in \wlp\usr\servers.



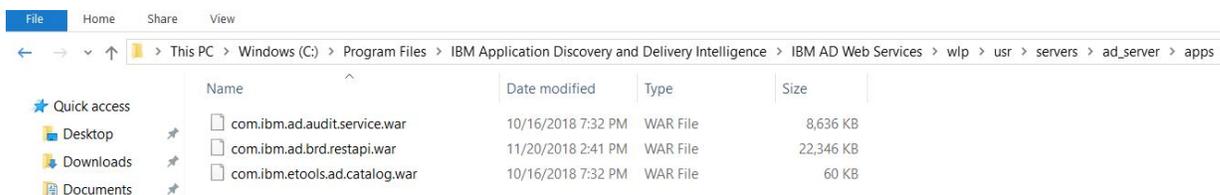
## Chapter 4. IBM AD Catalog

The **IBM AD Catalog** package is used to enable the impact analysis on the api(s) published by a **z/OS Connect** server.

### Installing the Catalog Service

#### Procedure

1. Make sure IBM WAS Liberty Web Service is correctly installed. For more information about installing IBM WAS Liberty Web Server, visit Chapter 3, “Installing Was Liberty,” on page 5.
2. From the IBM AD Web Services installation folder, copy file `com.ibm.etools.ad.catalog.war` to `\usr\servers\ad_server\apps`.



3. From the IBM AD Web Services installation folder, copy file `server.xml` to `\usr\servers\ad_server`, overwriting the existing one.

**Note:** This file represents a template for all IBM AD Web Services settings.

4. From the IBM AD Web Services installation folder, copy file `com.ez.jtlds-x.x.x.jar` to `\usr\shared\config`.

### Configuring the Catalog Service

#### Procedure

1. Open the `server.xml` file from `\usr\servers\ad_server`.
2. In the `<!-- Add the Catalog database connection details-->` area, enter the SQL database in the **databaseName** field.

```
databaseName="Catalog"
```

**Note:** The Catalog Service uses only a database created on a **SQL Server**.

3. In the same area, enter the IP of the server in the **serverName** field.

```
serverName=
```

4. Enter the SQL port in the **portNumber** field (the default is 1433).

```
portNumber="1433"
```

5. Enter the user and password used to connect to the SQL database in the **user** and **password** fields.

```
<!-- Add the Catalog database connection details-->
<dataSource id="ADCatRDB" jndiName="jdbc/ad/catalog/relational" type="javax.sql.DataSource">
  <jdbcDriver libraryRef="JTDSLib" javax.sql.DataSource="net.sourceforge.jtlds.jdbcx.JtldsDataSource"/>
  <properties databaseName="catalog" serverName="127.0.0.1" portNumber="1433" user="sa" password="password"/>
</dataSource>
```

**Note:** By default, the **Catalog Service** communicates through **port 9080**. However, you can change the port number by altering the **httpPort** field from the `server.xml` file.

```
<!-- To access this server from a remote client add a host attribute to the following element, e.g. host="*" -->
<httpEndpoint httpPort="9080" httpsPort="9443" id="defaultHttpEndpoint" host="*" />
```

## Configuring the Data Collector

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### About this task

#### Procedure

1. Copy the files for **Data Collector** from `zoscdDataCollector` to a new working directory.
2. Update the `DC.properties` file in this newly created working directory, by setting the following property values:

**Important:** Please do not update other property values in the file, unless otherwise instructed by IBM Support.

- a. **ZoscURL:** Specify the protocol, the host name and the port for the **z/OS Connect** server as a URL.  
**Note:** You need to append `/zosConnect/apis` as the path part of the URL. An example value is `http://<zoscHost>:9081/zosConnect/apis`.
  - b. **ZoscUser:** Specify the user name by which **Data Collector** connects to the **z/OS Connect** server. If user authentication is disabled on **z/OS Connect** server or **IBM AD Catalog**, you do not need to define this property value in the property file
  - c. **ZoscPass:** Specify the password (in plain text) used by **Data Collector** to connect to the **z/OS Connect** server. If user authentication is disabled on **z/OS Connect** server or **IBM AD Catalog**, you do not need to define this property value in the property file
  - d. **DataCollectorId:** Specify the **Data Collector** ID, for **AD** to identify an instance of **z/OS Connect** server.  
**Note:** For v5.0.4, the **DataCollectorId** string must be the same as the **ZoscURL** property value. Additionally, **DataCollectorId** must contain the `zosConnect/apis` string which can be either `zosConnect/apis` or the full URL of the `ZoscURL`.
  - e. **ADCatalogURL:** Specify the protocol, the host name and the port used by the **AD Catalog**.  
**Note:** You need to append `com.ibm.etools.ad.catalog/cat/entity` to the URL path. An example value is `http://<catalogHost>:9080/com.ibm.etools.ad.catalog/cat/entity/`.
  - f. **ADCatalogUser:** Specify the user name by which **Data Collector** connects to the **AD Catalog** If user authentication is disabled on **z/OS Connect** server or **IBM AD Catalog**, you do not need to define this property value in the property file.
  - g. **ADCatalogPass:** Specify the password (in plain text) used by **Data Collector** to connect to the **IBM AD Catalog** If user authentication is disabled on **z/OS Connect** server or **AD Catalog**, you do not need to define this property value in the property file.
3. Check the `PATH` environment variable. You need to add the directory where `java.exe` resides in the `PATH environment` variable, in case it is missing.
  4. Update `zoscdc.cmd`.  
**Important:** You need to specify the jar file of **JSON4J** that resides under `/WAS_Liberty_Library/lib/` with full path name, as a part of the `-classpath` argument. The file name of the jar file should look like `com.ibm.json4j_x.x.x.jar`.  
Alternatively, you can specify the property values listed in **step 2** as the property values passed to the `java` command. For example, the **ZoscUser** property can be specified as an argument for `-DZoscUser=user1`.

## How to Collect z/OS Connect API Information

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### About this task

Take the following steps to invoke **Data Collector** to collect **z/OS Connect** API information.

### Procedure

1. Open a windows command prompt and change the current directory to the /  
Data\_Collector\_Working\_Directory/.
2. Run `zoscdc.cmd`.

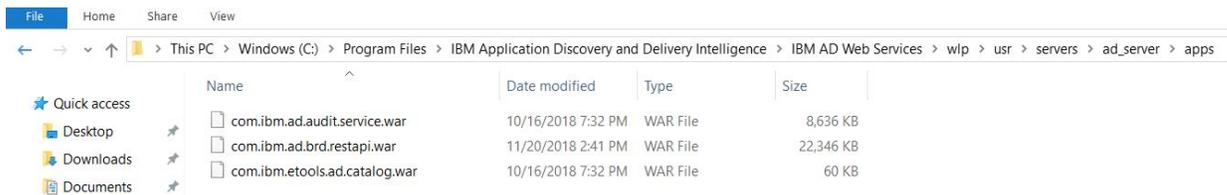


# Chapter 5. IBM AD Audit

## Installing the Audit Service

### Procedure

1. Make sure IBM WAS Liberty Web Service is correctly installed. For more information about installing IBM WAS Liberty Web Server, visit Chapter 3, “Installing Was Liberty,” on page 5.
2. From the IBM AD Web Services installation folder, copy file `com.ibm.ad.audit.service.war` to `\usr\servers\ad_server\apps`.



3. From the IBM AD Web Services installation folder, copy file `server.xml` to `\usr\servers\ad_server`, overwriting the existing one.

**Note:** This file represents a template for all IBM AD Web Services settings.

4. From the IBM AD Web Services installation folder, copy file `com.ez.jtds-x.x.x.jar` to `\usr\shared\config`.

## Configuring the Audit Service

### Procedure

1. Open the `server.xml` file from `\usr\servers\ad_server`.
2. In the `<!-- Add the Audit database connection details-->` area, enter the SQL database in the **databaseName** field.

```
databaseName="Audit"
```

**Note:** The Audit Service uses only a database created on a **SQL Server**.

3. In the same area, enter the IP of the server in the **serverName** field.

```
serverName=
```

4. Enter the SQL port in the **portNumber** field (the default is 1433).

```
portNumber="1433"
```

5. Enter the user and password used to connect to the SQL database in the **user** and **password** fields.

```
<!-- Add the Audit database connection details-->
<dataSource id="DefaultDataSource" jndiName="jdbc/datasource" type="javax.sql.DataSource">
  <jdbcDriver libraryRef="JTDSLib" javax.sql.DataSource="net.sourceforge.jtds.jdbcx.JtdsDataSource"/>
  <properties databaseName="audit" serverName="127.0.0.1" portNumber="1433" user="sa" password="password" ssl="request"/>
</dataSource>
```

**Note:** By default, the **Audit Service** communicates through **port 9080**. However, you can change the port number by altering the **httpPort** field from the `server.xml` file.

```
<!-- To access this server from a remote client add a host attribute to the following element, e.g. host="*" -->
<httpEndpoint httpPort="9080" httpsPort="9443" id="defaultHttpEndpoint" host="*" />
```

## Configuring IBM AD Components to Use the Audit Service

### About this task

**IBM AD Build Client**, **IBM AD Batch Server** and **IBM AD Analyze Client** can be configured to use the **Audit Service** by following these steps.

### Procedure

1. Open the **IBM AD Configuration Server** application, and go to **Configurations > Audit page**.
2. Set the *hostname* and the *port* used to communicate with the **Audit Service**.

The screenshot shows the 'IBM Application Discovery Configuration Servers Admin' interface. On the left is a navigation menu with options like 'Configuration Servers', 'localhost:2181', 'Environments', 'Tom', 'Configurations', 'DEFAULT', 'Information', 'Analyze Servers', 'Reports', 'Rule based', 'Graph Database', 'Catalog', and 'Audit' (which is selected). The main content area is titled 'AD Audit webservice configuration'. It includes a checked 'Allow overwrite' checkbox, a 'Host' field with '127.0.0.1', a 'Port' field with '9080', an 'HTTP protocol' dropdown set to 'HTTP', and an 'Authentication' dropdown set to 'No authentication'. At the bottom are 'EDIT' and 'DELETE' buttons.

**Note:** The **Audit Service** for **IBM AD Batch Server** is set to be enabled by default. To stop using the **Audit Service**, set **audit.enable=true** to **audit.enable=false** in the `server.properties` file located in the `\conf` folder.

```
##Audit server
# default true
#audit.enable=true
```

## Using the Audit Service Web GUI

### Procedure

1. Open a browser and access the following address: `localhost:9080/ad-audit`.

**Note:** Use the same port as the one configured in the **AD Web Service**.

2. Click **Search** to see all entries.

Search event

Start date:  End date:  Username:  Application:

[Search](#) [Download as csv](#)

Application name	Operation name	Operation type	Project Name	Username	Date
IBM AD Analyze Client	Flow Chart Analysis	15173	HospitalAPP	Toma Putere	12/6/2017, 5:58:11 PM
IBM AD Batch Server	annUpdate	25005	HospitalAPP	SYSTEM	12/6/2017, 5:43:41 PM
IBM AD Batch Server	gdblimport	25004	HospitalAPP	SYSTEM	12/6/2017, 5:43:41 PM
IBM AD Batch Server	Project version changed	25012	HospitalAPP	SYSTEM	12/6/2017, 5:43:40 PM
IBM AD Batch Server	index	25003	HospitalAPP	SYSTEM	12/6/2017, 5:43:40 PM
IBM AD Build Client/Server	Build project	1007	HospitalAPP	Toma Putere	12/6/2017, 5:41:48 PM
IBM AD Batch Server	Acquire new project	25010	HospitalAPP	SYSTEM	12/6/2017, 5:41:40 PM
IBM AD Build Client/Server	Build project	1007	HospitalAPP	Toma Putere	12/6/2017, 5:38:38 PM
IBM AD Batch Server	annUpdate	25005	HospitalAPP	SYSTEM	12/6/2017, 4:20:08 PM
IBM AD Batch Server	index	25003	HospitalAPP	SYSTEM	12/6/2017, 4:20:08 PM
IBM AD Batch Server	gdblimport	25004	HospitalAPP	SYSTEM	12/6/2017, 4:20:08 PM
IBM AD Batch Server	Project version changed	25012	HospitalAPP	SYSTEM	12/6/2017, 4:20:08 PM
IBM AD Build Client/Server	Close project	1001	HospitalAPP	Toma Putere	12/6/2017, 4:15:27 PM
IBM AD Batch Server	annUpdate	25005	HospitalAPP	SYSTEM	12/6/2017, 4:03:51 PM
IBM AD Batch Server	gdblimport	25004	HospitalAPP	SYSTEM	12/6/2017, 4:03:51 PM
IBM AD Batch Server	index	25003	HospitalAPP	SYSTEM	12/6/2017, 4:03:50 PM

3. Use filters to search for specific entries by start and end date, username or by application.

Search event

Start date:  End date:  Username:  Application:

[Search](#) [Download as csv](#)

Application name	Operation name	Operation type	Project Name	Username	Date
IBM AD Build Client/Server	Build project	1007	HospitalAPP	Toma Putere	12/6/2017, 5:41:48 PM
IBM AD Build Client/Server	Build project	1007	HospitalAPP	Toma Putere	12/6/2017, 5:38:38 PM
IBM AD Build Client/Server	Close project	1001	HospitalAPP	Toma Putere	12/6/2017, 4:15:27 PM
IBM AD Build Client/Server	Build project	1007	HospitalAPP	Toma Putere	12/6/2017, 4:02:20 PM
IBM AD Build Client/Server	Open Project	1000	HospitalAPP	Toma Putere	12/6/2017, 4:02:10 PM
IBM AD Build Client/Server	Rename project	1004	UpgradeTest_DoneWith5030	Toma Putere	12/6/2017, 4:01:24 PM
IBM AD Build Client/Server	Recreate repository	1005	UpgradeTest_DoneWith5030	Toma Putere	12/6/2017, 3:59:27 PM
IBM AD Build Client/Server	Close project	1001	Coding_Rules_Regression	Toma Putere	12/6/2017, 2:22:51 PM
IBM AD Build Client/Server	Open Project	1000	Coding_Rules_Regression	Toma Putere	12/6/2017, 2:22:21 PM

4. Alternatively, you can export the results by clicking **Download as csv**.

```
Application Name, Operation Name, Operation Type, Project Name, Username, Date, IP, Instance Id
IBM AD Build Client/Server,Open Project,1000,Coding_Rules_Regression,Toma Putere,06.12.2017 at 02:22:21,9.228.129.68,null
IBM AD Build Client/Server,Close project,1001,Coding_Rules_Regression,Toma Putere,06.12.2017 at 02:22:51,9.228.129.68,null
IBM AD Build Client/Server,Recreate repository,1005,UpgradeTest_DoneWith5030,Toma Putere,06.12.2017 at 03:59:27,9.228.129.68,null
IBM AD Build Client/Server,Rename project,1004,UpgradeTest_DoneWith5030,Toma Putere,06.12.2017 at 04:01:24,9.228.129.68,null
IBM AD Build Client/Server,Open Project,1000,HospitalAPP,Toma Putere,06.12.2017 at 04:02:10,9.228.129.68,null
IBM AD Build Client/Server,Build project,1007,HospitalAPP,Toma Putere,06.12.2017 at 04:02:20,9.228.129.68,null
IBM AD Build Client/Server,Close project,1001,HospitalAPP,Toma Putere,06.12.2017 at 04:15:27,9.228.129.68,null
IBM AD Build Client/Server,Build project,1007,HospitalAPP,Toma Putere,06.12.2017 at 05:38:38,9.228.129.68,null
IBM AD Build Client/Server,Build project,1007,HospitalAPP,Toma Putere,06.12.2017 at 05:41:48,9.228.129.68,null
```

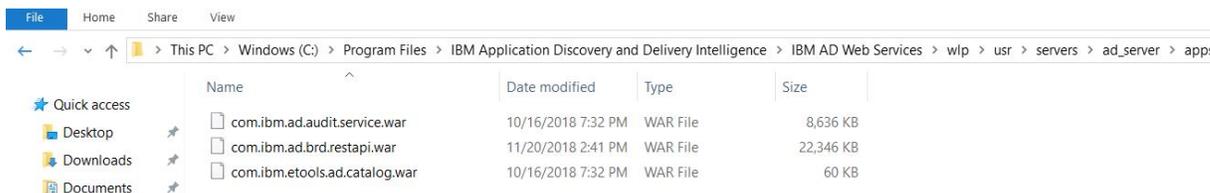


## Chapter 6. IBM AD BRD

### Installing the BRD Service

#### Procedure

1. Make sure IBM WAS Liberty Web Service is correctly installed. For more information about installing IBM WAS Liberty Web Server, visit [Chapter 3, “Installing Was Liberty,”](#) on page 5.
2. From the IBM AD Web Services installation folder, copy file `com.ibm.ad.brd.restapi.war` to `\usr\servers\ad_server\apps`.



3. From the IBM AD Web Services installation folder, copy file `server.xml` to `\usr\servers\ad_server`, overwriting the existing one.

**Note:** This file represents a template for all IBM AD Web Services settings.

4. From the IBM AD Web Services installation folder, copy file `com.ez.jttds-x.x.x.jar` to `\usr\shared\config`.

### Configuring the BRD Service

#### Procedure

1. From the IBM AD Web Services installation folder, copy folder `conf.brd-ws` to `\wlp\usr\servers\ad_server`.
2. Go to `\wlp\usr\servers\ad_server\conf.brd-ws` and in `application.properties` file, enter the desired values for the properties detailed below.
3. Fill in the username and the password defined for IBM AD BRD Service.

- **ad.user**=<UserName>
- **ad.password**=<Password>

4. Add the IP of the computer where the **IBM AD Configuration Server** host is installed.

```
## IBM AD Configuration Server host  
ccs.server.host=
```

5. Add the port number to be used by **IBM AD Configuration Server**; the default port is 2181, if no other value is specified the default value will be used.

```
## IBM AD Configuration Server port  
## default 2181  
#ccs.server.port=
```

6. Add the ID of the Environment set in **IBM AD Configuration Server**.

```
## IBM AD Configuration Server environment  
ccs.environment=
```



---

## Chapter 7. Starting AD Web Services

### About this task

Once the installation and configuration are done, you can start the IBM AD Catalog, IBM AD Audit and IBM AD BRD web services by following these steps.

### Procedure

1. Go to `\wlp\bin` and execute the **`server.bat start ad_server`** command.

**Note:** It takes roughly 30 seconds to 1 minute for the **Ad Server** to start.

2. Check the execution log file, accessible at `\wlp\usr\servers\ad_server\logs\console.log`.



# Documentation Notices for IBM Application Discovery for IBM Z

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This edition applies to version 5.1.0 of IBM Application Discovery for IBM Z with the corresponding fix packs.

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